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Spatial Analysis of Historic Cemeteries: Using High Spatial Resolution Imagery as a Visual Aid

Richard E. Brooks, Research Assistant; Dr. Daniel R. Unger, Associate Professor; Dr. I-Kuai Hung, Assistant Professor
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Abstract

Oak Grove Cemetery, located within the City of Nacogdoches in Nacogdoches County Texas, is one of the earliest cemeteries in the county dating to the early 1800's. Several historic Texans are interred within this cemetery including Thomas J. Rusk and Charles S. Taylor who was the great-great-grandfather of current United States Senator Kay Bailey Hutchison. Due to a fire circa 1910 many of the records for the original section of the cemetery were lost. In the summer of 2006, the GPS coordinates of each grave marker within the cemetery were plotted on a backdrop of 6 inch spatial resolution multispectral digital imagery using a Trimble GeoExplorer 3 GPS unit. The genealogical data from each marker were collected for spatial and genealogical analysis. By incorporating high spatial resolution digital imagery with GPS collected grave marker data we were able to use spatial analysis to display familial relationships and perform statistical analysis of this historic cemetery as well as recover much of the lost historical data while simultaneously creating an enhanced genealogical database for current and future ancestral queries.

Graves Stratified by Age

Legend
Age
1-33
34-48
49-61
62-72
73-118

When viewing age at death within 5 classes it is difficult to ascertain age at death of any given grave relative to their nearest neighboring grave. By displaying death using an Inverse Distance Weighted of age one can more easily view a grouping of age at death relative to neighboring cemetery plots.

Graves Stratified by Decade

Legend
Decade
1830
1840
1850
1860
1870
1880
1890
1900
1910
1920
1930
1940
1950
1960
1970
1980
1990
2000

When viewing burial year by decade it is difficult to ascertain spatial relationships between burial location. By stratifying death year within 5 natural breaks across decades one can more easily view the utilization of the cemetery and its expansion from the early 1800's to today.

Graves Stratified by IDW Age

Legend
IDW (age)
1-33
34-48
49-61
62-72
73-118

Graves Delineated Across Decades

Legend
Decades
1830-1870
1871-1900
1901-1930
1931-1960
1961-2000

Age as Elevation

Age as Elevation

Selected spatial analysis views of: tombstones, age at death and burial decade.

Summary Circle
1 standard deviation
90 meters

Directional Circle
50 meters
long axis

Simple Density Distribution

Kernel Density Distribution

Oak Grove Cemetery

Legend
Roads
Boundary
Family Plots

Selected Grave Sites

Selected Grave Sites

Oak Grove Cemetery Brochure

Nacogdoches Convention & Visitors Bureau
200 East Main, Nacogdoches, Texas

Historic Oak Grove Cemetery

City of Nacogdoches

Map composition by Daniel R. Unger and Richard E. Brooks.
RazorTek, LLC base map imagery acquired January 20, 2005; GPS vector data collected Summer 2006.

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